

WHAT IS CLAIMED IS:

1. An image forming apparatus comprising:  
charging means for charging an image bearing  
member;

5 exposure means for exposing said image  
bearing member that has been charged to form an  
electrostatic latent image;

developing means for developing said  
electrostatic latent image with developer;

10 transferring means, to which a transferring  
bias under constant voltage control is applied,  
for transferring a developer image on the image  
bearing member onto other member;

test pattern forming means for forming a test  
15 pattern for image control on said image bearing  
member by supplying developer by said developing  
means to an area on said image bearing member in  
which charging by said charging means is effected  
and exposure by said exposure means is not  
20 effected;

test pattern detection means for detecting  
the test pattern that has been transferred to the  
other member by said transferring means; and

control means for setting a value of the  
25 transferring bias upon transferring of the test  
pattern onto the other member in accordance with a  
surface potential of said image bearing member

upon formation of the test pattern.

2. An image forming apparatus according to claim 1, wherein said control means sets a value  
5 of  $V_{tr}'$  in such a way that a potential difference between  $V_l$  and  $V_{tr}$  is substantially equal to a potential difference between  $V_d'$  and  $V_{tr}'$ ,

where

$V_l$  represents a surface potential of said  
10 image bearing member that has been exposed by said exposure means upon formation of a normal image;

$V_{tr}$  represents a value of the transferring bias applied to said transferring means upon transferring of the normal image;

15  $V_d'$  represents a surface potential of said image bearing member that has been charged by said charging means upon formation of the test pattern; and

$V_{tr}'$  represents a value of the transferring  
20 bias applied to said transferring means upon transferring of the test pattern.

3. An image forming apparatus according to claim 1, wherein a developing bias for supplying  
25 the developer is applied to said developing means, and

wherein a value of the developing bias upon

formation of a normal image is different from a value of the developing bias upon formation of the test pattern.

5           4. An image forming apparatus according to claim 1, wherein a value of a surface potential of said image bearing member that has been charged by said charging means upon formation of a normal  
10 potential of said image bearing member that has been charged by said charging means upon formation of the test pattern.

15           5. An image forming apparatus comprising:  
charging means, to which a charging bias is applied, for charging an image bearing member;  
exposure means for exposing said image bearing member that has been charged to form an electrostatic latent image;  
20           developing means for developing said electrostatic latent image with developer;  
transferring means, to which a transferring bias under constant voltage control is applied, for transferring a developer image on the image  
25 bearing member onto other member;  
test pattern forming means for forming a test pattern for image control on said image bearing

member by supplying developer by said developing means to an area on said image bearing member in which charging by said charging means is effected and exposure by said exposure means is not  
5 effected;

test pattern detection means for detecting the test pattern that has been transferred to the other member by said transferring means; and

control means for setting a value of the  
10 transferring bias upon transferring of the test pattern onto the other member in accordance with a value of the charging bias applied to said charging means upon formation of the test pattern.

15 6. An image forming apparatus according to claim 5, wherein said control means sets a value of  $V_{tr}'$  in such a way that a potential difference between  $V_l$  and  $V_{tr}$  is substantially equal to a potential difference between  $V_{pre}'$  and  $V_{tr}'$ ,

20 where

$V_l$  represents a surface potential of said image bearing member that has been exposed by said exposure means upon formation of a normal image;

$V_{tr}$  represents a value of the transferring  
25 bias applied to said transferring means upon transferring of the normal image;

$V_{pre}'$  represents the charging bias applied to

said charging means upon formation of the test pattern; and

Vtr' represents a value of the transferring bias applied to said transferring member upon  
5 transferring of the test pattern.

7. An image forming apparatus according to claim 5, wherein a developing bias for supplying the developer is applied to said developing means,  
10 and

wherein a value of the developing bias upon formation of a normal image is different from a value of the developing bias upon formation of the test pattern.

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8. An image forming apparatus according to claim 5, wherein a value of the charging bias applied to said charging means upon formation of a normal image is different from a value of the  
20 charging bias applied to said charging means upon formation of the test pattern.

9. An image forming apparatus comprising:  
charging means for charging an image bearing  
25 member;

exposure means for exposing said image bearing member that has been charged to form an

electrostatic latent image;

developing means, to which a developing bias is applied, for supplying said image bearing member with developer;

5        transferring means, to which a transferring bias under constant voltage control is applied, for transferring a developer image on the image bearing member onto other member;

test pattern forming means for forming a test  
10 pattern for image control on said image bearing member by supplying developer by said developing means to an area on said image bearing member in which charging by said charging means is effected and exposure by said exposure means is not  
15 effected;

test pattern detection means for detecting the test pattern that has been transferred to the other member by said transferring means; and

control means for setting a value of the  
20 transferring bias upon transferring of the test pattern onto the other member in accordance with a value of the developing bias upon formation of the test pattern.

25        10. An image forming apparatus according to claim 9, wherein said control means sets a value of  $V_{tr}$  in such a way that a potential difference

between  $V_{dc}$  and  $V_{tr}$  is substantially equal to a potential difference between  $V_{dc}'$  and  $V_{tr}'$ ,

where

$V_{dc}$  represents a value of the developing bias  
5 applied to the developing means upon formation of a normal image;

$V_{tr}$  represents a value of the transferring bias applied to said transferring means upon transferring of the normal image;

10  $V_{dc}'$  represents a value of the developing bias applied to said developing means upon formation of the test pattern; and

$V_{tr}'$  represents a value of the transferring bias applied to said transferring member upon  
15 transferring of the test pattern.

11. An image forming apparatus according to claim 9, wherein a value of a surface potential of said image bearing member that has been charged by  
20 said charging means upon formation of a normal image is different from a value of a surface potential of said image bearing member that has been charged by said charging means upon formation of the test pattern.

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